



# R110ie

60 Hz

## ENGINEERING DATA SHEET

CCN: 23663800  
 Rev.: G  
 ECN: 83773  
 Sheet: 1 of 2  
 Date: 25-Jun-2015

Model Name	R110IE-X110	R110IE-X125	R110IE-X145	R110IE-X200	
<b>GENERAL PERFORMANCE DATA</b>					
Maximum Operating Pressure <sup>(2)</sup>	barg (psig)	7.5 (110)	8.5 (125)	10 (145)	14 (200)
Rated Discharge Pressure	barg (psig)	7 (100)	8 (115)	9.5 (135)	13.5 (190)
Minimum Operating Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Capacity FAD <sup>(1)</sup>	m <sup>3</sup> /min (cfm)	22.99 (812)	20.53 (725)	19.28 (681)	15.43 (545)
Maximum Operating Ambient Temperature	°C (°F)		46 (115)		
Minimum Operating Ambient Temperature	°C (°F)		2 (35)		
Maximum System Temperature Setting	°C (°F)		109 (228)		
Nominal Power - Main Motor	HP		150		
Main Motor Efficiency <sup>(3)</sup>	Percent		95.8%		
Pkg. Input Power with Fan Motor - Air Cooled <sup>(4)</sup>	kW	127.5	128.0	128.7	129.5
Pkg. Input Power with Fan Motor - Water Cooled <sup>(4)</sup>	kW	119.3	119.8	120.5	121.3
Specific Power - Air Cooled <sup>(4)(5)</sup>	kW/m <sup>3</sup> /min (kW/100cfm)	5.55 (15.70)	6.23 (17.66)	6.67 (18.90)	8.39 (23.76)
Specific Power - Water Cooled <sup>(4)(5)</sup>	kW/m <sup>3</sup> /min (kW/100cfm)	5.19 (14.69)	5.84 (16.52)	6.25 (17.69)	7.86 (22.26)
<b>SOUND LEVEL <sup>(6)</sup></b>					
Standard Package - Air Cooled	dB(A)			75	
Standard Package - Water Cooled	dB(A)			72	
<b>COOLING DATA (@ Maximum Ambient Temperature &amp; Maximum Discharge Pressure)</b>					
Heat Removal Oil Cooler	kW (1000 Btu/hr)	126 (430)	122 (416)	126 (429)	129 (440)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	158 (538)	152 (517)	155 (527)	154 (526)
Additional Static Pressure (16)	Pa (in H <sub>2</sub> O)		60 (0.25) - 250 (1.0)		
<b>Air-cooled</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)		363 (12829)		
Fan Motor Nominal Power	kW		5.5		
Cooling Air Temperature Rise	°C (°F)	25 (46)	27 (48)	28 (50)	28 (50)
Aftercooler CTD, 60 Hz <sup>(7)</sup>	°C (°F)	8 (14)	7 (13)	7 (13)	6 (11)
<b>Water-cooled - Standard Duty</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)		115 (4000)		
Fan Motor Nominal Power	kW		0.8		
Aftercooler CTD <sup>(7)(8)</sup>	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
<b>Cooling Water Flow</b>					
@ 10°C (50°F)	l/min (gal/min)	147 (39)	154 (41)	154 (41)	154 (41)
@ 20°C (68°F)	l/min (gal/min)	154 (41)	165 (44)	165 (44)	165 (44)
@ 30°C (86°F)	l/min (gal/min)	158 (42)	169 (45)	169 (45)	169 (45)
@ 40°C (104°F)	l/min (gal/min)	158 (42)	169 (45)	169 (45)	169 (45)
@ 46°C (115°F)	l/min (gal/min)	166 (44)	172 (46)	173 (46)	173 (46)
Cooling Water Temperature Rise @ 30°C	°C (°F)	11 (20)	11 (20)	11 (20)	11 (20)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise @ 30°C	°C (°F)	7 (12)	7 (12)	7 (12)	7 (12)
<b>Water-cooled - Harsh Duty</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)		115 (4000)		
Fan Motor Nominal Power	kW		0.8		
Aftercooler CTD <sup>(8)</sup>	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
<b>Cooling Water Flow</b>					
@ 10°C (50°F)	l/min (gal/min)	180 (48)	177 (47)	177 (47)	177 (47)
@ 20°C (68°F)	l/min (gal/min)	188 (50)	192 (51)	188 (50)	188 (50)
@ 30°C (86°F)	l/min (gal/min)	188 (50)	188 (50)	188 (50)	188 (50)
@ 40°C (104°F)	l/min (gal/min)	192 (51)	196 (52)	196 (52)	196 (52)
@ 46°C (115°F)	l/min (gal/min)	199 (53)	199 (53)	199 (53)	199 (53)
Cooling Water Temperature Rise @ 30°C	°C (°F)	9 (17)	10 (18)	10 (18)	11 (19)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise	°C (°F)	7 (12)	7 (12)	7 (12)	7 (12)
<b>AIR END DATA</b>					
Male Rotor Speed Stage 1	RPM	2085	2005	1853	1523
Male Rotor Tip Speed Stage 1	m/sec	25.0	24.0	22.0	18.0
Male Rotor Speed Stage 2	RPM	2000	1925	1782	1469
Male Rotor Tip Speed Stage 2	m/sec	19.0	18.0	17.0	14.0
Full Load Shaft Power	kW	114	115	115	116



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### CONSTRUCTION, FOUNDATION, AND MOUNTING DATA

#### PIPING CONNECTIONS

Air Discharge	Inches BSPT/NPT <sup>(9)</sup>	3.00
Package Automatic Condensate Drain	Inches BSPT/NPT <sup>(9)</sup>	0.38
Coolant Drain Plug	Inches BSPT/NPT <sup>(9)</sup>	0.75
Diameter of Power Inlet	mm / inch	Up to 4.0" (removable plate)
Water Inlet and Outlet Connections	Inches BSPT/NPT <sup>(9)</sup>	1.50

#### COOLANT LUBRICATION DATA

Total Coolant Capacity - Air Cooled	litres (US gal)	95 (25)
Total Coolant Capacity - Water Cooled - Std	litres (US gal)	90 (24)
Total Coolant Capacity - Water Cooled - Harsh	litres (US gal)	95 (25)

#### DIMENSIONS & WEIGHT

		Base Mounted
Length, Width, Height	mm (inches)	2855 / 1836 / 2032 (112.4 / 72.3 / 80)
Net Weight - Air Cooled	kg (lb.)	3198 (7050)
Net Weight - Water Cooled	kg (lb.)	3175 (7000)
GA Drawing Number - Air Cooled		23570609
GA Drawing Number - Water Cooled		23570617

#### ELECTRICAL DATA<sup>(14)</sup>

**380V, 3Φ 440V, 3Φ 460V, 3Φ 575V, 3Φ**

		IP55 (TEFC)			
Motor Protection		IP55 (TEFC)			
Full Load Package Current - Air Cooled <sup>(10)</sup>	Amps	234	202	193	154
Full Load Package Current - Water Cooled <sup>(10)</sup>	Amps	226	194	185	146
Package Locked Rotor Current	Amps	1845	1594	1524	1220
Package Power Factor		0.88	0.88	0.88	0.88

#### Electrical Installation

Recommended Supply Cable Size <sup>(11)(15)</sup>	mm <sup>2</sup> /Cu (AWG or kcmi)	150(300)	135(250)	120(4/0)	95(3/0)
Maximum Recommended Fuse Rating <sup>(11)(12)</sup>	Amps	300	300	250	200

#### Notes :

- (1) FAD (Free Air Delivery) is full package performance including all losses. Tested per ISO 1217 : 2009 Annex C
- (2) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure
- (3) IE3 efficiency motor
- (4) Measured at rated capacity and rated pressure
- (5) Specific power guaranteed in accordance with ISO 1217 : 2009 Annex C
- (6) Measured in free field conditions per ISO 2151 using Hemispherical Method; ducted inlet and outlet, with + 3 dB(A) tolerance.
- (7) 40% Relative Humidity Inlet Air and maximum speed ( For alternate conditions contact Ingersoll Rand)
- (8) Ambient temperature equivalent to cooling water inlet temperature
- (9) BSPT or NPT, depending on regional standard
- (10) Maximum current includes 10% additional current due to fouled filters and elements
- (11) Always apply local electrical codes for sizing cables and fusing.
- (12) Time delay fuse recommended. Apply local electrical codes for fuse sizing
- (13) Coolant volumes listed are approximate. See operator manual for coolant fill procedure.
- (14) Voltage tolerance: 357V - 440V
- (15) Cable size based on 90°C copper cables
- (16) See detailed scope document 23883374

**Product Improvement is a continuing goal at Ingersoll Rand. Design and specifications are subject to change without notice or obligation.**